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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/745,826	12/21/2000	Anthony Berno Berno	3365	8676

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EXAMINER

CHARIOUI, MOHAMED

ART UNIT	PAPER NUMBER
2857	

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/745,826

Applicant(s)

BERNO, ANTHONY BERNO

Examiner

Mohamed Charioui

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-63 and 66-98 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-63 and 66-98 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. **Figures 4-11** are objected to because each of the figures shows an arrow on the top of the diagram and an arrow on the bottom of the diagram, but it is not clear where the top arrow is coming from and where the bottom arrow is going to. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. **Claims 9-11** are objected to because of the following informalities:

Claim 9 recites the limitation "wherein the probe intensity data" in page 3 of the preliminary amendment. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Examiner considers that claim 9 depends on claim 95 for examination.

Claims 10 and 11 are objected to because of the following informalities: in page 3, line 14, of the preliminary amendment, change "binary object, wherein said 100 probe intensity values." to -- binary object.--. Appropriate correction is required.

Claims 74-76 are objected to because of the following informalities:

Claim 74 recites the limitation "wherein the probe intensity data" in page 13 of the preliminary amendment. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Examiner considers that claim 74 depends on claim 97 for examination.

Claims 75 and 76 are objected to because of the following informalities: in page 13, lines 7-8, of the preliminary amendment, change "binary object, wherein said 100 probe intensity values." to -- binary object--. Appropriate correction is required.

Claims 28 and 29 are objected to because of the following informalities: in page 6, line 1, change "The method of claim 28" to -- The method of claim 24--. Appropriate correction is required.

Claim 37 are objected to because of the following informalities: in page 7, line 1, change "The method of claim 37" to -- The method of claim 36--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. **Claims 3-8** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation "the set of data need not to be frequently accessed in arbitrary ways" is unclear.

Claims 32-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation "the set of data need not to be frequently accessed in arbitrary ways" is unclear.

Claims 68-73 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation "the set of data need not to be frequently accessed in arbitrary ways" is unclear.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-3, 9, 12-14, 22, 23, 30-32, 38-40, 43-45, 53, 54, 66-68, 74, 77-79, 87, 88 and 95-98** are rejected under 35 U.S.C. 103(a) as being unpatentable over Balaban et al. (U.S. 6,188,783) in view of Woodhill et al. (U.S. 5,649,196).

As per claims 1, 9, 13, 22, 30, 38, 40, 44, 53, 66, 74, 78, 87, 95 and 97, Balaban et al. teach grouping a set of data (i.e. probe records) according to its most common access requirements into a plurality of groups (see col. 2, lines 38-48; col. 5, line 55 to col. 6, line 6; and col. 4, lines 19-53); and storing the groups in a database (see col. 2, lines 38-48).

Balaban et al. fail to teach storing the groups in a database as single binary objects, wherein each of the groups is stored as one single binary object.

Woodhill et al. teach this feature (col. 1, line 65 to col. 2, line 50). It would have been obvious to one having ordinary skill in the art at the time the invention was made

to incorporate Woodhill et al.'s teaching into Balaban et al.'s invention because it would store the groups as single binary objects and each of the groups is stored as one single binary object. Therefore, binary objects would be copied from one storage area to another in an efficient manner and the storage space would be well managed and capable of accommodating a large array of large capacity storage which is reliable and only requires minimum amount of human intervention.

As per claims 2, 3, 14, 23, 31, 32, 45, 54, 67, 68, 79 and 88, Balaban et al. further teach that the database is a relational database (see col. 2, lines 38-46).

As per claims 12, 43 and 77, Balaban et al. further teach that the set of data are probe design data comprising probe information (see col. 2, lines 28-37).

As per claims 39, 40, 96 and 98, Balaban et al. teach that the probe intensity data are from gene expression experiments (see col. 6, lines 7-29).

Balaban et al. fail to teach that the data from each probe set are grouped into one single binary object.

Woodhill et al. teach this feature (col. 1, line 65 to col. 2, line 50). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate Woodhill et al.'s teaching into Balaban et al.'s invention because the data from each probe set would be grouped into one single binary object. Therefore, the binary object which contains the data from each probe set would be copied from one storage area to another in an efficient manner and the storage space would be well managed and capable of accommodating a large array of large capacity storage which is reliable and only requires minimum amount of human intervention.

5. **Claims 10, 11, 41, 42, 75 and 76** are rejected under 35 U.S.C. 103(a) as being unpatentable over Balaban et al. in view of Woodhill et al. and Ghandoor et al. (U.S. 6,516,276).

As per claims 10, 41, and 75, Balaban et al. in view of Woodhill et al. teach the system as stated above except grouping at least a 100 probe intensity values.

Ghandoor et al. teach this feature (see col. 17, lines 18-30 and Fig. 6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate Ghandoor et al.'s teaching into Balaban et al. in view of Woodhill et al.'s teaching because it would group 100 probe intensity values. Therefore, these intensity values would be analyzed to determine whether a gene is present in the unknown sample or not.

As per claims 11, 42, and 76, Balaban et al. in view of Woodhill et al. teach the system as stated above except grouping at least a 1000 probe intensity values.

Ghandoor et al. teach this feature (see col. 17, lines 18-30 and Fig. 6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate Ghandoor et al.'s teaching into Balaban et al. in view of Woodhill et al.'s teaching because it would group 1000 probe intensity values. Therefore, these intensity values would be analyzed to determine whether a gene is present in the unknown sample or not.

6. **Claims 4-8, 15, 24, 28, 29, 33-37, 46, 55, 56, 69-73, 80, 86, 89 and 90** are rejected under 35 U.S.C. 103(a) as being unpatentable over Balaban et al. in view of Woodhill et al. and Keesey et al. (U.S. 6,598,055).

Balaban et al. in view of Woodhill et al. teach the system as stated above except that the grouping comprises encoding the data into the binary objects by calling a component software.

Keesey et al. teach this feature (see col. 4, lines 7-35). It would have been obvious to one having ordinary skill in the art at the time the invention to incorporate Keesey et al.'s teaching into Balaban et al. in view of Woodhill et al.'s teaching because it would encoding the data into the binary objects by calling COM object. Therefore, interface between the client and the object would be provided and the need for application programmer to write application programs that retrieve data from a structured object would be eliminated.

As per claims 24, 56 and 90, Balaban et al. further teach that each of the groups comprises data for probes in a tiling segment (see col. 6, lines 29-46).

7. **Claims 16-21, 47-52, 81-83 and 86** are rejected under 35 U.S.C. 103(a) as being unpatentable over Balaban et al. in view of Woodhill et al. and Keesey et al. and Ghandoor et al.

As per claims 16, 47 and 81, Balaban et al. in view of Woodhill et al. and Keesey et al. teach the system as stated above except grouping at least a 100 probe intensity values.

Ghandoor et al. teach this feature (see col. 17, lines 18-30 and Fig. 6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate Ghandoor et al.'s teaching into Balaban et al. in view of Woodhill et al. and Keesey et al.'s teaching because it would group 100 probe intensity values.

Therefore, these intensity values would be analyzed to determine whether a gene is present in the unknown sample or not.

As per claims 17, 18, 48, 49 and 82-85, Balaban et al. in view of Woodhill et al. and Keesey et al. teach the system as stated above except grouping at least a 1000 probe intensity values.

Ghandoor et al. teach this feature (see col. 17, lines 18-30 and Fig. 6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate Ghandoor et al.'s teaching into Balaban et al. in view of Woodhill et al. and Keesey et al.'s teaching because it would group 1000 probe intensity values. Therefore, these intensity values would be analyzed to determine whether a gene is present in the unknown sample or not.

As per claims 19-21, 50-52 and 86, Balaban et al. in view of Woodhill et al. Ghandoor et al. teach the system as stated above except that the grouping comprises encoding the data into the binary objects by calling a component software.

Keesey et al. teach this feature (see col. 4, lines 7-35). It would have been obvious to one having ordinary skill in the art at the time the invention to incorporate Keesey et al.'s teaching into Balaban et al. in view of Woodhill et al. and Ghandoor et al.'s teaching because it would encoding the data into the binary objects by calling COM object. Therefore, interface between the client and the object would be provided and the need for application programmer to write application programs that retrieve data from a structured object would be eliminated.

8. **Claims 26, 27, 57-63 and 91-94** are rejected under 35 U.S.C. 103(a) as being unpatentable over Balaban et al. in view of Woodhill et al. and Keesey et al. and Hacia et al. (U.S. 6,342,355).

Balaban et al. in view of Woodhill et al. and Keesey et al. teach the system as stated above except that the segment is at least 250 bases.

Hacia et al. teach this feature (see col. 8, lines 3-21). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate Hacia et al.'s teaching into Balaban et al. in view of Woodhill et al. and Keesey et al.'s teaching because the probe set would tile at least a 250 bases segment region of interest. Therefore, different genes would be interrogated and the composition of the sample target would be determined.

Prior art

9. The prior art made record and not relied upon is considered pertinent to applicant's disclosure:

Lipshutz et al. ['454] disclose computer-aided probability base calling for arrays of nucleic acid probes on chips.

Baumann ['501] discloses database system for management of arrays.

Bruso et al. ['219] disclose database management system and method for databases having large objects.

Lyons ['232] discloses system and method for multirecord compression in a relational database.

Cronin et al. ['744] disclose analysis of genetic polymorphisms and gene copy number.

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Pratt ['086] discloses mapping binary objects in extended relational database management systems with relational registry.

Contact information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohamed Charioui whose telephone number is (571) 272-2213. The examiner can normally be reached Monday through Friday from 9 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mohamed Charioui

4/26/03


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